Q.1. Please state your name and business address.

A. My name is Bruce L. Egan, Box 2927, Jackson Hole, Wyoming, 83001.

Q.2. Please state your qualifications.

A. I am Executive Vice President of INDETEC International, a business consulting firm specializing in media and telecommunications. I am an economist and academic researcher currently serving as a Special Consultant and Senior Affiliated Research Fellow at the Columbia Institute for Tele-Information (CITI) at Columbia University in New York (since 1988). I am also an adjunct professor at Columbia Business School where I teach a course in Business and Technology of Telecommunications and Information in the Executive MBA Program. From 1988 to 1995, I ran my own business as an independent industry consultant. I have 20 years of experience in economic and policy analysis of telecommunications in both industry and academia. Before joining CITI in 1988, I was an economist at Bellcore since 1983, and at Southwestern Bell Telephone Company from 1976 to 1983. I have written two books and published numerous articles in books and journals on telecommunications regulation, competition, costing, pricing, and public policy. My publications are listed in my VITA attached hereto in Appendix BE-1MCI. I have and continue to perform research and consulting for many non-profit organizations and government agencies including the U.S. Congress, European Community, United Nations, and OECD.

In the area of telecommunications cost analysis I have conducted extensive research and surveys of the costs of telecommunications network infrastructures with particular emphasis on the costs of subscriber

access lines for both wired and wireless networks. I have completed research reports for the U.S. Congress Office of Technology Assessment on the costs of digital telecommunication infrastructures, and I have performed studies for both the U.S. Congress and the Tennessee Valley Authority on the costs and funding alternatives for modernizing the rural telecommunications infrastructure. I have researched issues, published articles and presented regulatory seminars on the topic of costs and funding of universal service for NARUC, the CPUC and the Benton Foundation. I am one of the original organizers and current faculty of the ongoing International Regulators Workshop, the most recent of which was co-sponsored by the Communications Committee of NARUC and the Columbia Institute for Tele-Information. During these workshops, I have conducted courses for regulators from over 40 countries on issues of competition policy including network costing, interconnection and universal service. I continue to conduct seminars for government regulators and telecommunications managers throughout the world.

Q.3. What is the purpose of your testimony in this arbitration proceeding?

A. Pacific Bell asked me to review the testimony of MCI witnesses DiTirro and Mercer and to evaluate their proposals and recommendations to the CPUC for establishing interim tariff rates applicable to MCI purchases of Pacific Bell retail services for purposes of resale and as it relates to the cost-based pricing of Pacific Bell's unbundled network elements.

reflects causation, then his model as corrected and extended by me shows that about 42% of overhead costs should not be allocated to any retail business because they are best accounted for by access charges, a "wholesale" category of service which is not subject to resale discounts. The results also show that an ILEC's basic local service is responsible for about 30% of the variation in overhead. Of course, if Pacific Bell sold all of its basic local service to carriers instead of end users, then it is not clear what portion of this 30% of Pacific Bell's overhead would be eliminated. More detailed analysis would be needed to determine this.

Ultimately, it should be possible to conduct more detailed cost studies to try to determine the relationship between Pacific Bell's overhead costs and its various retail and wholesale lines of business.

V. THE HATFIELD MODEL SHOULD BE REJECTED BY THE CPUC FOR DETERMINING THE COSTS AND PRICES OF PACIFIC BELL'S UNBUNDLED NETWORK COMPONENTS

Q.20. Should the CPUC accept AT&T's cost model for setting Pacific Bell's tariff rates for unbundled network elements?

A. No. Even though the CPUC is required by the new FCC rules to set tariff rates for Pacific Bell's unbundled network elements using the concept of Total Element Long Run Incremental Cost (TELRIC), it should not use the Hatfield model recommended by AT&T's expert witness Dr. Mercer.

Q.21. Why?

A. There are many reasons why the Hatfield model is not appropriate for determining the cost of unbundled network elements. The most important reason is that actual cost studies exist for these elements – there is no need for a proxy model. Another reason is that none of the Hatfield Models has ever demonstrated itself to be objective or accurate. In particular, the Hatfield model: 1) is fundamentally based on a demonstrably inferior and untested loop cost model; 2) incorporates many assumptions that are not consistent with the FCC's proposed TELRIC costing methodology; and, 3) utilizes many cost factors and assumptions that are not specific to California or to Pacific Bell.

Q.22. What is the underlying loop cost model relied on by the Hatfield model?

A. The Hatfield model, called HM 2.2.2, which stands for Hatfield Model Version 2.2 release 2, is a network costing model overlay which is dependent for critical inputs derived from both the inputs and outputs of an underlying loop cost model called BCM1. This model was already presented by AT&T in earlier Universal Service proceedings before the CPUC. The Proposed Decision there rejected it in favor of another model called the Cost Proxy Model (CPM).

Q.23. But, hasn't Dr. Mercer stated that he is introducing a new and improved version of the loop cost model BCM1 called BCM-PLUS which overcomes the shortcomings of BCM1?

A. Possibly in some respects. But, the new version, BCM-PLUS, has not undergone the type of regulatory and other rigorous scrutiny that is

normally applied before a model can be adopted for purposes of public policy and rate setting. For example, we know that BCM-PLUS still suffers from some of the most basic problems associated with the old BCM1 model. The methodology used in the BCM-PLUS model still improperly assigns certain subscribers to the wrong serving wire center location. And the BCM-PLUS model is still based on a relatively inferior and inaccurate measure of actual subscriber locations because it utilizes a Census Block Group rather than the much smaller grid cell employed by the Cost Proxy Model (CPM) introduced previously in the CPUC Universal Service proceeding. Therefore, the usefulness of HM 2.2.2 for costing and pricing Pacific Bell's unbundled network elements is doubtful.

This arbitration proceeding is designed to determine -- in a very compressed time frame -- interim resale tariff rates and unbundled network element prices. It is not the place to be introducing -- and reviewing -- new proxy cost models, nor is it necessary to do so, given the availability of actual cost studies for this arbitration.

Q.24. Please describe some of the problems with the Hatfield Model.

A. The latest version of the Hatfield Model (Hatfield Model 2.2.2 or HM 2.2.2 for short) is essentially a proxy cost model. As such, it need not, and should not, be used to establish the costs and prices of Pacific Bell's unbundled network elements. Cost studies for that purpose should, more appropriately, be based on the forward-looking costs that Pacific Bell will incur consistent with the market circumstances it faces rather than on some purely hypothetical view of the network from a proxy cost model. Since HM 2.2.2 disregards Pacific Bell's particular circumstances, it does not succeed in approximating the cost Pacific Bell will likely experience.

Furthermore, HM 2.2.2 does not even succeed in approximating the costs that would likely be experienced by a hypothetical start-up firm that is completely unconstrained by past network development and technology choices. It is not enough that HM 2.2.2 assumes that Pacific Bell's existing wire center locations are used as required by the FCC's new costing rules, because the model still presumes an unrealistic cost structure whereby some hypothetical start-up firm is instantaneously able to serve Pacific Bell's entire market. Just because incremental cost studies are forward-looking in nature does not imply that Pacific Bell's current and past network engineering and provisioning practices are irrelevant or that its embedded base of network assets should be completely ignored. Indeed, it is Pacific Bell's incremental costs that are clearly at issue in determining the costs of unbundled network elements, not some hypothetical firm that faces no historical constraints on its provisioning of unbundled network elements. For this reason, a hypothetical proxy cost model like HM 2.2.2 is not realistic, even in a forward-looking sense.

Q.25. What consequences are there if proxy cost models like HM 2.2.2 produce unrealistically low estimates of Pacific Bell's unbundled network element costs?

A. Basing prices on costs that no real-world provider could hope to meet is *anticompetitive* because it would stifle, not promote, the most effective type of competition of all -- facilities-based competition. Two types of distortions to competition would result. First, pricing unbundled elements below a reasonable (*i.e.*, real world) estimate of incremental cost would thwart competitive entry in the market for local exchange service. Second, non-compensatory prices for unbundled elements would

undermine Pacific Bell's incentives to improve its network, because an adequate return for its investment would not be forthcoming.

In addition, requiring Pacific Bell to sell inputs at rates that are not fully cost compensatory would have the effect of forcing Pacific Bell's retail customers to subsidize the below-cost unbundled network element purchases of competing carriers, which may simply re-bundle Pacific Bell's network elements to provide essentially the same services to the same customers that Pacific Bell was selling to begin with.

Q.26. Is HM 2.2.2 the final version of the model?

A. No, not if recent history is any indication. The model appears to be undergoing continuous change and represents a moving target for those trying to evaluate its reliability.

Q.27. What are some other limitations of the HM 2.2.2 as it is applied to Pacific Bell in California?

A. There are numerous limitations in the methodology and application of HM 2.2.2. The following list is not meant to be exhaustive as I have not had time to conduct any detailed analysis nor has all of the detailed model documentation been made available.

1. The scorched node used by the Hatfield Model allows the LEC's existing central office locations to be treated as fixed, but assumes that the rest of the network (outside plant such as feeder and distribution facilities, switches, etc.) is always available for instant redesign and re-optimization. A substantial portion of Pacific Bell's investments and expenses arises from the particular types and placement of all network facilities, not just where the wire centers

happen to be located. AT&T was an active participant in the CPUC cost proceedings in which the parties agreed on several costing principles. Among these principles was a version of the "scorched node" approach that maintained the existing locations of both switches and outside plant.[7] The Hatfield Model also departs from the FCC's objective for TELRIC studies: "This benchmark of forward-looking cost and *existing* network design most closely represents the incremental costs that incumbents actually expect to incur in making network elements available to new entrants." First Interconnection Order at ¶685. [emphasis added]

2. The Hatfield Model assumes that, despite competitive entry by new firms, a single company would continue to *fully* serve all volumes presently served by the incumbent LEC and, therefore, would be able to realize the fullest extent of the economies of scale and scope experienced by the incumbent. In a competitive market, no single firm (incumbent or entrant) is likely to serve the volume currently being served by the incumbent LEC. Furthermore, as Pacific Bell loses some portion of its market to entrants, its own incremental costs are likely to rise because any reduction of the volume served by Pacific Bell may cause it to suffer a reduction of its scale economies as well.

3. The Hatfield Model assumes unrealistically high fill factors for both feeder and distribution cable (65-80% for copper feeder and 50-75% for distribution).[8] Because *actual* fills are usually considerably less,

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[7] California Public Utilities Commission, Decision 95-12-016, December 6, 1995, Appendix C, p 4

[8] The tables of fill factors in the Hatfield model are used to determined necessary capacity. Because available units of capacity may not exactly fit the necessary capacity, actual fills from the model may be somewhat lower than the tabulated values. The Hatfield model documentation and output contain no information on the actual fills produced by the model.

the assumed fill factors tend to underestimate costs because higher fill means less cable investment.[9] Furthermore, this notion is reflected in the CPUC's interim decision (D.96-08-021) in the OANAD proceeding to use specific fill factors (76% for copper feeder and 36-40% for distribution) which are less than the fill factors assumed in the Hatfield Model.

4. As previously mentioned, the HM 2.2.2 assigns customers in different Census Block Groups (CBGs) to the nearest central office. This sometimes results in households within a CBG being assigned to a wire center or company other than the one actually serving them. In some cases, an entire wire center could be omitted.

5. The Hatfield Model assumes that each CBG is served by exactly four distribution cables. When this assumption is not an accurate representation of reality, serious underestimation of cost can occur. In addition, because the model utilizes CBGs as proxy's for actual subscriber locations rather than the actual characteristics of the LEC's distribution area, it is quite possible for the model to assign larger cable sizes (and, therefore, to experience greater economies of scale and correspondingly lower costs) to a densely-populated CBG than the cable sizes actually deployed by LECs in their largest distribution areas.

6. The Hatfield Model fails to properly reflect the costs incurred in rural CBGs. The Hatfield Model averages costs over all subscribers in a given CBG, even when the CBG is larger than the corresponding

[9] The First Interconnection Order at ¶682 specified that a "reasonable projection" of the actual fill should be used.

wire center. This sort of averaging is unacceptable, especially in rural areas.

Beyond these shortcomings, the Hatfield Model continues to employ numerous engineering assumptions, costs and cost factors, and accounting data, which are generic rather than specific to the incremental cost structure which is specific to Pacific Bell in California.

Q.28. How do the results in the latest version of the Hatfield model filed in this proceeding compare to those from the last version filed in the pending OANAD case?

A. The following table compares costs estimated from HM 2.2.1 filed in the OANAD proceeding with the costs filed in this proceeding using HM 2.2.2.[10]

NETWORK ELEMENT	HM 2.2.1 UNIT COST	HM 2.2.2 UNIT COST
Loop Distribution	$6.01 per month	$5.36 per month
Loop Feeder	$.83 per month	$2.45 per month
Loop Concentration	$1.66 per month	$1.96 per month
Total Loop	**$8.50 per month**	**$9.77 per month**
End-Office Switching: Port	$1.20 per line/month	$1.09 per line/month
End-Office Switching: Usage	$0.0023 per minute	$0.0021 per minute
Signaling Elements: Links "A"	$17.62 per link/month	$16.85 per link/month
Signaling elements: STP	$0.00020 per message	$0.00003 per message
Signaling elements: SCP	$0.00094 per message	$0.00105 per message

[10] Source: HM 2.2.1 Unit Cost results OANAD opening Testimony of Dr. Robert A. Mercer, attachment RAM-3, p. 1 of 2, June 14, 1996, and HM 2.2.2 Unit Cost results - Opening Testimony of Dr. Robert A Mercer, p. 24, August 19, 1996, total all elements and switched transport from RAM-5 p. 1 of 2.

Transport elements: Dedicated	$13 00 per DS-O equiv/month	$3.99 per DS-O equiv/month
Transport elements: Switched	$0.00129 per minute	$0.00040 per minute
Transport elements: Common	$0.00177 per minute/leg	$0.00073 per minute/leg
Transport elements: Tandem Switch	$0.0008 per minute	$0.0009 per minute
Total All Elements	**$13.98 per line/month**	**$14.60 per line/month**

Probably due to significant changes in network engineering assumptions concerning feeder and distribution cable provisioning, this cost comparison shows that the loop distribution costs are considerably lower using HM 2.2.2, but the feeder costs are considerably higher. Using the latest version of the model, Dr. Mercer shows that loop costs have increased about 15%, but overall unbundled element costs per line have increased only 4%. Certain non-loop unbundled elements changed very dramatically. For example, unit costs for dedicated and switched transport elements decreased by two-thirds while tandem switching increased 13%. It is just such dramatic changes that require that the model results undergo careful scrutiny before the CPUC considers the use of the newer version of the model.

Q.29. Please summarize your assessment of the Hatfield Model.

A. Although available documentation has not permitted a comprehensive analysis of HM 2.2.2, there are numerous sources of bias built into the Hatfield model assumption and input structure. Despite Dr. Mercer's claims that the Hatfield model is likely to produce "conservatively

high" cost estimates, there is serious built-in potential for underestimation of the forward-looking costs of Pacific Bell's network in a competitive environment, not the least of which are the higher risk adjusted cost of capital and depreciation rates and the lower fill factors. For instance, Pacific Bell experiences some of the lowest fills in metropolitan areas such as Los Angeles and San Francisco, where competitive access providers have stripped away some of Pacific Bell's business. This results in increased available capacity and corresponding lower fill factors. All of these rather obvious adjustments required to reflect the newly competitive environment will serve to substantially increase Pacific Bell's unit costs.

Q.30. What is the problem with basing unbundled network element prices on cost estimates that are too low?

A. The fundamental problem with basing unbundled network element prices on cost estimates that are too low is that facilities-based local exchange competition may be stopped in its tracks just when Congress was trying to stimulate it by passing the Act. New facilities-based entrants will be inhibited by artificially low prices for Pacific Bell's resold services and unbundled network elements and, at the same time, Pacific Bell's incentives to invest in innovation and cost reducing investments are harmed. This scenario is basically a throw-back to old fashioned rate-of-return, rate base regulation where prices were based on costs and rewards for productivity improvements were almost nonexistent. It is bad enough that the FCC has chosen to impose cost-based pricing for all LECs' unbundled network elements. This undermines the positive market-based incentives that the state regulators strove to create by adopting price cap regulation in lieu of profit regulation. The purpose was to reward LECs for

investing in superior technology and cost reducing innovations. Instead, what we potentially end up with is inefficient market entry, needless spare capacity, and continued high costs of regulation. Ultimately, the loser in this scenario is the consumer, who would have benefited considerably more from true price and service competition.

Q.31. If the Commission decides to consider a proxy model, are there other models it should also consider?

A. Yes. The CPM loop cost model, which was introduced previously for purposes of estimating prospective costs of universal service, may be used in conjunction with a network element overlay in the same way that the Hatfield Model relies on the next generation of the BCM1 model sponsored by Dr. Mercer. For example, the CPM has already been used to produce some unbundled network element costs for the FCC. Furthermore, the BCM2 model which was referred to by Dr. Mercer, and which represents a significant advancement over the old BCM1 model may also be used to support an unbundled network element costing process. The BCM-PLUS model is not unique in this regard and, under the circumstances, it would not be appropriate to simply adopt it as the costing standard for unbundled network elements.

Q.32. But, these shortcomings notwithstanding, Dr. Mercer has stated that the Hatfield Model overlay used in conjunction with BCM-PLUS utilizes a costing methodology that is entirely consistent with the FCC's new rules for calculating the TELRIC for unbundled network elements.

A. That assertion is a conjecture until a full investigation of BCM-PLUS is completed and the model is validated. Dr. Emmerson's testimony compares the service costing process used by Pacific Bell and the CPUC with that of the FCC's new TELRIC costing rules. Dr. Emmerson points out that the two are not very different in many respects and that the incremental service costing process already in use in California may be readily adapted to fulfill the FCC's requirements for costing unbundled network elements according to TELRIC. There is no reason for the CPUC to rely on proxy cost models if the current incremental service cost studies and methods can be adequately adjusted to identify the TELRIC of the underlying unbundled network components and functions which comprise the FCC's minimum set of unbundled network elements.

Q.33. Does that conclude your testimony?

A. Yes.

Affidavit of Ralph Parker

AFFIDAVIT OF RALPH PARKER

1. My name is Ralph E. Parker. I am a Market Manager, Industry Markets Group, Pacific Bell.

2. I submit this affidavit in response to certain comments filed pertaining to the treatment of interstate information services in the Federal Communication Commission's December 24, 1996 Notice of Proposed Rulemaking in CC Docket No. 96-262, *Access Charge Reform*.

3. The facts and analyses presented herein are true and correct to the best of my knowledge, information, and belief.

I. THE INTERNET ACCESS COALITION'S ARGUMENT BASED ON THE ETI STUDY IS BASED ON A MISUNDERSTANDING OF THE COSTS OF PROVIDING TRUNK-SIDE SERVICES

4. Citing the January 22, 1997 Selwyn/Laszlo ETI Study, the Internet Access Coalition states that "network congestion may arise because many ESP/ISPs access the network using analog business lines that connect to 'switch components that are designed to handle primarily low-use individual residential and small business access line customers."[1] The coalition concludes that "*all* of the LEC switch congestion problems could be alleviated if ESPs/ISPs used access arrangements (such as T-1 based ISDN Primary Rate Interface Service) that connect at the trunk side, rather than the line side of the switch."[2] This argument is without merit for two reasons. First, under the exemption, ESPs may use either line-side or trunk-side local exchange

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[1] Internet Access Coalition at 14, citing ETI Study at 3.
[2] Internet Access Coalition at 14-15.

services. LECs must allow ESPs to use local business lines in the same manner as business customers.[3] Second, even with trunk-side services, congestion would still occur on interoffice facilities and terminating end office switches. Although trunk-side connections are preferable to line-side connections, they consume costly switch resources for which Pacific Bell and Nevada Bell are not compensated under the ESP exemption. Thus, the Internet Access Coalition's argument, based on the ETI Study, is based on a misunderstanding of the costs of providing trunk-side services.

II. REMOVAL OF THE ESP EXEMPTION WOULD ACTUALLY SUPPORT THE INTERNET ACCESS COALITION'S REQUEST THAT THE COMMISSION CREATE INCENTIVES FOR ILECS TO DEPLOY PACKET SERVICES THAT ALLOW MORE EFFICIENT TRANSPORT OF DATA TRAFFIC

5. The Internet Access Coalition states that the removal of the exemption "would have an adverse effect on competition" because "if non-carrier-affiliated ESPs/ISPs were required to pay per-minute charges to LECs [the ESPs] would not be able to reap the efficiency benefits that packet technology can provide."[4] The Coalition is mistaken as to the effect of the ESP exemption. Currently, the ESP exemption allows ESPs to have virtually free use of the circuit switched network, which gives them the strong incentive to continue to send all their traffic over that network rather than use more efficient "data-friendly" services for which they would have to pay charges that recover the LECs' costs. Upon removal of the ESP exemption, ESPs could choose to continue to use the circuit switched network, and they would pay usage-based charges, like any other access customer. This would encourage ESPs to decrease their use of the circuit

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[3] *See, e.g., Filing and Review of Open Network Architecture Plans*, CC Docket No. 88-2, 4 FCC Rcd 1 para. 318 (1988) ("*ONA Plans Order*").

[4] Internet Access Coalition at 19.

switched network and increase their use of fast packet and other data services to reduce usage charges and "reap the efficiency benefits." Thus, removal of the ESP exemption would actually support the Internet Access Coalition's request that the Commission create incentives for ILECs to deploy packet services that allow more efficient transport of data traffic.[5]

III. ELIMINATING THE ESP EXEMPTION WILL BENEFIT CONSUMERS AND COMPETITION BY PROVIDING INCENTIVES FOR INVESTMENT AND INNOVATION IN THE NETWORKS THAT SUPPORT INFORMATION SERVICES (¶¶282-290)

6. Network Congestion. AOL states that "there is no imminent collapse of the public switched network, nor is there widespread network congestion that is impeding the ability of voice customers to use the telephone network."[6] Network service is protected in Pacific Bell's and Nevada Bell's territories because they are dedicated to investing hundreds of millions of dollars over the next few years in network expansion in order to handle anticipated enhanced services traffic. Approximately one-third of Pacific Bell's switches serve Internet and other on-line service providers, which leaves these switches particularly vulnerable to Internet congestion.[7] AOL's recent, highly publicized, problems demonstrate how congestion can be exacerbated by flat-rate pricing. We appreciate AOL's assurance that it will work with the LECs to avoid congestion problems.[8] What is needed most, however, is a nondiscriminatory pricing

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[5] *Id.* at 22-23.

[6] AOL at 13.

[7] The Selwyn/Lazlo ETI study (pp. v, vi) states that the BOCs' and Bellcore's statements concerning congestion rely on "evidence drawn from a few unrepresentative central offices." In fact, approximately 220 of Pacific Bell's central offices are used as points of presence by Internet and other on-line service providers, and 35 of those central offices already have exceeded standard network performance thresholds for traffic volumes.

[8] AOL at 14.

structure that allows LECs to recover their costs for network investment. As CWA explains, further growth of Internet traffic necessitates investment to increase bandwidth, upgrade switches, and to reconfigure the network.[9] This expansion is crucial to protect large numbers of telephone service subscribers, and, as CWA concludes, there is no reason to discriminate in favor of ESPs and exempt them from having to pay to cover the costs of this expansion.[10]

7. Second Lines. Some parties state or imply that LECs are adequately compensated for Internet access traffic because of the increase in sales of second lines to residential customers.[11] Actually, the costs of second lines used with Internet access exceed the flat rates that Pacific Bell and Nevada Bell receive for the lines, and there are no usage charges for Internet traffic to make up the shortfall. Residential line rates are designed to recover costs based on customers using other services (e.g., toll and Custom Calling) in addition to flat-rate basic service. For Internet traffic, Pacific Bell and Nevada Bell receive no additional compensation even if the end user stays "nailed up" to an ESP 24 hours a day, as many do. Thus, to the extent these lines are used for Internet communications, they do not contribute to the recovery of the investment that is needed to accommodate Internet traffic. In fact, they simply create more costs caused by ESPs which are paid for by others.

8. Consumer Prices. A few parties support retention of the ESP exemption based on the need to avoid price increases for consumers of Internet access.[12] For instance, AOL states that access charges "would increase consumer costs to an extent likely to stifle demand for

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[9] CWA at 6-7.

[10] *Id.*

[11] AOL at 14-15, Commercial Internet Exchange at 4-5, CompuServe at 13-16, Internet Access Coalition at 12-16, PaISP at 21-26, NCTA at 4-7.

[12] AOL at 6-7, Commonwealth of the Northern Mariana Islands at 12-13, Commercial Internet Exchange at 5-7, NAA at 1-4.

information services, threatening the entire industry."[13] In our comments, we showed that, using figures from the recent Selwyn/Lazlo ETI Study, the effect on an "average" ESP end user's prices would be an increase of only $3.00 per month from applying a hypothetical usage rate of $.01 per minute to ESPs' purchases of access. Moreover, offsetting part of this potential price increase could be the cost savings that ESPs would enjoy from moving to an access network architecture.[14] Most of any price increase would be felt by the 10% of ESP end users who account for "between 60% and 70% of total ESP hours of use."[15] Most of any price increase would not be felt by the "lower income Americans" of concern to the Media Access Project and the Commonwealth of the Northern Mariana Islands.[16] Consumers as a whole would benefit from the cost causers paying their share of the costs they cause. This equitable approach would provide the economic incentive needed to help develop new services for the benefit of all consumers.

9. Competition. A few parties incorrectly argue that removal of the ESP exemption would benefit LEC-affiliated ESPs to the detriment of other competitors. For instance, the Internet Access Coalition states that LEC-affiliated ESPs, "would retain access charge payments, passing on savings to customers and placing non-affiliated ESPs at an insurmountable competitive disadvantage."[17] Actually, the Commission has extensive rules ensuring that the largest LECs, the BOCs, provide interconnection to third-party ESPs that is comparably efficient, including identical prices, to the interconnection that they provide to their own enhanced service

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[13] AOL at 6-7.
[14] *See* PTG at 79.
[15] ETI Study at 26.
[16] Media Access Project at 2-3, Commonwealth at 12-13.
[17] Internet Access Coalition at 17-22.

operations. Moreover, the Commission has extensive accounting rules and other safeguards to ensure against LEC cross-subsidies to support their enhanced services operations.

10. Competition. The ESP exemption distorts competition among telecommunications providers. As API explains, the exemption minimizes an ESP's incentive to seek competitive telecommunications alternatives to LEC access.[18] NCTA's argument is totally without merit that removal of the ESP exemption would cause "[t]he imposition of a special charge on a competitor's service, intended to mitigate competitive forces and favor telephone distribution at the expense of broadband cable modem distribution, [and] may impede cable's exciting new service offering."[19] Actually, so long as the ESP exemption is in place, ESPs are strongly encouraged to continue to use the LECs' local business services. Removal of the exemption will remove that artificial incentive and, thus, encourage the use of alternative services offered not only by LECs but by cable TV companies and others. As ACTA points out, a "'new' access charge regime that continues the subsidization of ESPs and ISPs is unwarranted and runs counter to the Commission's intent to foster and accelerate the introduction of efficient competition in all telecommunications markets."[20]

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[18] API at 48.
[19] NCTA at 4.
[20] ACTA at 26.

I declare under penalty of perjury that the foregoing is true and correct. Executed in San Francisco, California, on February 12, 1997.

Ralph E. Parker

State of California

County of San Francisco

On Feb. 12, 1997, before me, Mary Lee personally appeared Ralph E. Parker, proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her authorized capacity, and that by his/her signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and seal

MARY LEE
Comm. # 1088062
NOTARY PUBLIC - CALIFORNIA
City & County of San Francisco
My Comm. Expires May 12, 2000

Mary Lee
SIGNATURE OF NOTARY

0149652.01

Pacific Bell ESP Impact Study

Comments of Pacific Telesis Group
February 14, 1997

Pacific Bell ESP Impact Study

Introduction

To develop information on the size of the ESP market, number of business lines used for end-user access, and the impact on the network Pacific employed a "case study" approach. From study data on a sample set of ESPs, estimates of the size and scope of the ESP market within Pacific's regions were developed. The study design included the measurements of traffic continuously over a 24 hour period for 7 days a week, for a period of two weeks (May 13 - May 26, 1996). The study encompassed 29 ESPs in 29 Central Offices and over 2000 lines. Initial results are presented below.

ESP Access Network Topology

The ESP exemption has enabled the ESPs to build access networks using state tariffed business lines. This architecture requires that ESPs establish business lines within the local calling area of their end-users. For example, for an on-line service or Internet access provider to reach 80 to 90% of the end-users in California, they need to establish approximately 50 different business line hunt groups (e.g. local access nodes). Local access nodes vary in size from a few lines up to a 1000 lines in a hunt group associated with a single telephone number. The number of lines, types of service (basic business line, Direct Inward Dialing Trunks, Centrex, and ISDN PRI) vary by type of ESP and the number of end-users in a local calling area.

ESP Access Network Demographics

Pacific Bell has conducted case studies on a sample of ESPs and has developed the following estimate of the size of ESP access networks in Pacific Bell's market area:

ESP Segment	Entities	Lines in use
Telemessaging	200-250	17,000
On-line/VANS	10-15	50,000
Bulletin Boards	200+	3,000
Internet Access	150+	40,000
Total	560+	110,000

Based on measured call volumes from a sample of ESP lines, the average ESP line handles approximately 125,000 minutes of calls per year. ESPs pay an average of about $20 per month per access line (including EUCL). Based on 110,000 lines, approximate annual revenues to Pacific Bell paid by ESPs for access is $26 million. This results in an effective per minute rate for ESPs of just over $0.002 per minute, or about 12% of what interexchange carriers pay for interstate switched access (an average of $0.018 per minute).

The On-Line/VAN and Internet segments are growing rapidly, with orders pending for several thousand additional lines. In the past year these segments have grown by up to 20,000 lines. Annualized traffic on Pacific's network from all of the ESP segments is in excess of 13.8 billion minutes.

Impact of ESP Traffic on Pacific Bell's Network

Lines used by ESPs are priced and engineered based on average traffic levels. Average busy hour traffic levels across all lines at Pacific Bell is 3 to 5 CCS (1 CCS = one-hundred call seconds, or 1.67 minutes of talk time). Central office switches are engineered to handle, on average, the 3 to 5 CCS busy hour load for each line in an office. When busy hour loads exceed the traffic load averages on which switches and trunks are engineered, Pacific Bell has to re-engineer its switches and deploy additional office equipment and trunking. Modularized switches, such as the 5ESS, have switch groups with specific CCS capacities. We typically serve 32 lines from a single switch group in the 5E. However, when an ESP establishes a large multi-line hunt group in an office, we are unable to provision the standard 32 lines on the switch group serving the ESP. We are finding that with some ESP hunt groups we can provisions only 4 or 5 lines per switch group. In addition to the impact on switch groups, intraswitch trunking between line and trunk modules must often be increased to handle above average call loads. Plus, in many cases interswitch trunking must be augmented.

Studies of ESP business line hunt groups indicate that ESP busy hours are significandy above those for business lines, with the average busy hour ranging from 13 to 21 CCS. For some individual hunt groups, we observed busy hour approaching 30 CCS. In addition, we identified one office in Silicon Valley where because of a large ESP's presence, 2.5% of the lines contributed to 20-36% of the office's traffic.

ESP Segment	Average Peak Hour CCS	Peak Hour for Segment	Average Call Duration (Min.)
Telemessaging	14	7:00PM	0.6
On Line / VANS	13	10:00PM	10.2
Bulletin Boards	21	11:00PM	28.3
Internet Access *	19	10:00PM	20.8
Average Pacific Bell (for offices sampled)	4	4:00PM	3.8

* *Note: Sample size adjusted for statistical validity*

In several instances business and residence customers have experienced slow dial tone and call blocking where ESPs have caused congestion in an office. To alleviate the congestion, office re-engineering jobs must be performed. In the first quarter of this year Pacific expended $2.6M in incremental capital expense to address ESP network impacts. This requirement is from offices where ESP hunt groups were large enough to be easily identified and linked to congestion problems.

Expenses planned for the remainder of the year include another $11 million to meet the forecasted ESP demand for ISDN Primary Rate. Thus, 1996 costs identified to date are $13.6 million. However, we believe this estimate to be consevative in that many network augments are caused by, but not necessarily linked to, ESP traffic loads.